CLASS SYLLABUS

From Idea to Product, From Lab to Market, and From Student to Entrepreneur

Key to the 21st Century development, social well being and global competitiveness of a nation is Innovation. Translating the fast developing world Technology and Innovation base into strategic solutions to today’s problems is a key role that Innovators can play in the Philippines.

Developed countries, endowed with broad based research programs, dynamic industrial research and development, and no shortage on great ideas, find it difficult to create exciting new products and new industries and services. There is a clear recognition that new ways of Innovating will require a different mindset, a different approach that brings great ideas fast to market and develops an entrepreneurial spirit of risk taking.

The Philippines lacks both a deep capabilities in University R&D base and a thriving industrial research base to launch a significant challenge to the world class innovation on its own. Few doubt the Philippines can benefit from a new approach Innovating, given the large gap in S&T accomplishments to date, and our obvious need to collaborate globally to acquire world class solutions to food security, disaster resilience, universal health and wellness and world class education. Even developed countries admit that key to R&D competitiveness is collaboration, because the important problems being addressed today are highly multi-disciplinary and require research, design, engineering and financial partnering. Thus we should prioritize understanding how Innovation happens globally and how to optimize our contributions to
Global Partnerships. Key to changing our global competitive position is for Ateneo students to become innovation savvy and to deepen their background in science and technology.

To this end the Innovation and Technology Class focuses on the processes of Innovation that brought to market new idea like Google Glass, Augmented Reality for Virtual Companions and Digital Signage for Smart Shopping Anywhere. The class surveys the path to market of highly innovative companies worldwide, asking how these Innovators aim to transition ‘from Idea to Product, from Lab to Market, or from Student to Entrepreneur.’ The class usually consists of a majority of upper division SOSE students with a background in Science, Computing and Engineering, who are embarking on one year of Undergraduate Research. This class helps them develop a keen sense of how the important transitions were made by the hottest companies worldwide, the risks and rewards involved, and how truly exciting (if even addicting) a career in Innovation and Technology can be.

Innovation is not a Spectator Sport - Learn and Innovate Now

The Innovation and Technology Class helps students demonstrate they understand how innovations happen AND how they themselves can contribute ‘hot, new, even patentable ideas’. The questions we deal with are - Where do great ideas come from, What key invention(s) underly a startup’s success and market value, How do we ‘own’ and idea, How do we attract investors, and How do we leverage the Innovation in solving key societal problems in the Philippines? The students present clear, concise technology based evaluations of hot new startups - their ideas, services, and businesses and the technology behind them - a powerful skill in a world competing to bring ideas to market.

We begin with two lectures themes and immediately assign Assignment 1: Introduction to Innovation and Technology and Patenting and ‘Owning Ideas’. The lectures deal with how Innovation happens and how deep technical insights can be leveraged into strong intellectual property. Focus will be on startups worldwide and how they innovate. In Assignment 1, students will analyze recent startups in various phases of development, several sources for ‘hot new ideas’ exist, notably the IEEE Spectrum, the Economist Quarterly, and MIT Technology Review. They will perform a patent search for relevant prior art and to assess the value of their ideas. Concise presentations of five charts and five minutes are required of each student. The dynamic of student innovators mixing and matching hot new ideas with the aim of creating something new and impactful is an integral part of the class experience.
When students realize their ideas are good enough to pursue as a business and even patentable, they appreciate how competing globally in Innovation and Technology happens.

**Appreciating the Internet and its Role in Disruptive Innovation**

Assignment 2 combines a Class Reading of an insight filled new book, “From Gutenberg to Zuckerberg - Disruptive Innovation in the Age of the Internet”, by John Naughton (Quercus - 2014) with individual reports on Disruptive Innovation. This book explains how the Internet is bringing about a revolution not unlike the Gutenberg revolution is the way we innovate. Moreover at its heart the Internet most addictive feature is that of delivering constant surprise and very disruptive innovations. It is hoped that the students will appreciate the power of the Internet in creating radically new Innovations and that Filipino Innovators like others must harness the power of the Internet in creating ‘hot new ideas’. We are a few clicks away (and a lot of hard work and luck) from world class innovation. Because of the easy sharing of hot new ideas, Filipinos with good technical backgrounds have no excuse not to innovate.

The students will divide the nine Chapters into nine modules and present 20 minutes on each Chapter. One half of the talk will be on the main points of the Chapter and the other ten minutes will be on real examples of disruptive innovations enabled or triggered by the Internet. The Chapter titles point the major themes of this very good book.

- Chapter 1 - Take the Long View
- Chapter 2 - The Web is not the Net
- Chapter 3 - For the Net, Disruption is a Feature, Not a Bug
- Chapter 4 - Think Ecology, Not Just Economics
- Chapter 5 - Complexity is the New Reality
- Chapter 6 - The Network is Now the Computer
- Chapter 7 - The Web is Evolving
- Chapter 8 - Copyrights and “Copywrongs”: Why Intellectual Property Regime No Longer Makes Sense
- Chapter 9 - Orwell vs. Huxley: The Bookends of Our Networked Future?

To broaden their preparation, students can go to AIC library which has probably one of the best book collection on Innovation available locally. Students can access the scientific literature through the campus library and the economics literature - Bloomberg, Environmental Challenges - Preservation, Preparedness, and Food Security
Wall Street Journal, and the Economist - through online sources made available by the Faculty.

Assignments 3 and 4 will be developed as we proceed through the second half of the semester. The particular themes we are considering are:

- Review of On Campus Research - Are we being as Innovative as We can? What about Intellectual Property Development - are we Owning our Own Ideas?
- Online Internet Courses - How will this be a Disruptive Innovation for Philippine Education?
- Biomedical Materials - Since many students are from Material Science, a module on advanced biological materials may be worth developing.
- Social Networking and the Potential for More Radical Disruption
- Reinventing Philippine Tourism in the Era of Disruptive Innovation

The students will be asked where we ought to vector during the second half of the Semester.

Class Assignments and Requirements

Last year each student's portfolio of work consisted of four presentations on different aspects of Innovation and Technology. These topics were a review of innovations from IEEE Spectrum, Patenting of Innovations - Owning Ideas, a review of Online Courses as Game Changers, and lastly New Business Ideas. Examples of last year’s presentations are on the class site. We expect a similar number of presentations will make up the student portfolio for the First Semester of 2014. We expect an active mixing and matching of ideas throughout the assignments. The Innovation and Technology Class behaves like a startup company looking for a few hot new ideas that Filipino innovators can pursue.

Since many are already doing an S&T thesis, they can understand the value of working on hot, interesting topics that can have huge business potential. The reason we behave like a startup, is to give the students an opportunity to innovate and to actually deliver their ideas to an audience of fellow innovators. As Steve Jobs said, ‘Real artists ship,’ meaning you must learn to deliver your excellent work when it is needed. All presentations are posted on the website (leaving off ideas that students decide to pursue.)

Industry Innovators and Faculty speakers also lecture in the Innovation and Technology Class, so students are responsible for engaging the speakers in wide ranging discussion on their mode of Innovation and areas of potential collaboration or funding for 'hot new ideas'. We allocate class time for preparation of the presentations and asking technical questions, so the key technology is explained very well. Students without a strong technical background succeed in crafting great presentations, making use of in class preparation time, tutorials on different topics from Faculty and classmates, and office hour consultation in AIC. Requiring a high quality portfolio from each students, allows us to give great grades for great work. Yet we hope the lasting value of contributing to the Innovation and Technology Class will be appreciated throughout their careers.